

REMARKS

Claims 1-14 are pending in the present application.

The specification and claims have been amended to improve their form and to clarify the invention. The drawings have also been amended as indicated in red ink to clarify the invention. A Drawing Change Approval Request (DCAR) is concurrently filed herewith. The Examiner's approval of the drawing corrections is respectfully requested.

I. PRIORITY DOCUMENT ACKNOWLEDGEMENT REQUESTED

The Examiner is respectfully requested to acknowledge receipt of the foreign priority document filed on January 14, 2000 in connection with above-identified application.

II. 35 U.S.C. § 103(a) REJECTION

Claims 1-3, 6-7 and 12 have been rejected under 35 U.S.C § 103(a) as being unpatentable over *Freimann et al.* (U.S. Patent No. 6,134,554). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

The Examiner alleges that *Freimann et al.* discloses the feature of determining matching of a table ID included in a present section with table IDs stored in a memory. However, this is inaccurate. In *Freimann et al.*, an analyzed section is compared to the criteria recorded in a level one node 300a.

If there is no match, then the analyzed section is compared to the criteria stored in the level one node 300b and so on. If there is at least one match between the analyzed section and the criteria set forth in one of the level one nodes 300a-300d, then the analyzed section is further compared to a level two set of criteria 300f-300h; otherwise, the analyzed section is rejected. In other words, the received section is compared to a single predetermined value for a node, whereas in Applicant's claimed invention, the comparison occurs between a table ID of the present section and a plurality of table IDs all stored in the memory.

In addition or in the alternative, the Examiner acknowledges that *Freimann et al.* does not disclose "a section processing unit for receiving and processing the section". To overcome this deficiency, the Examiner relies on the transmission unit of *Freimann et al.* However, in *Freimann et al.*, if the analyzed section does not match any of the criteria stored in any of the level nodes, the section is rejected. The comparison process in *Freimann et al.* continues until the analyzed section is either rejected by failing to match any of the criteria associated with the nodes or accepted after being matched with all criteria stated in the levels. For instance, please see column 6, lines 17-21 of *Freimann et al.* That is, in *Freimann et al.*, the present section is processed only if all the criteria have been matched.

In clear contrast, in Applicant's claimed invention, the present section is processed if there is no match, *i.e.*, if the version number stored in the matched table ID is not the same as the version number of the present section.

Therefore, the combination of references as applied by the Examiner does not teach or suggest, *inter alia*:

a comparing unit for determining matching of a table ID included in a present section with the table IDs stored in the memory . . .

a section processing unit for receiving and processing the present section if it is determined that the version number stored in the matched table ID is not the same as the version number of the present section

as recited in independent claim 1; and

determining matching of the table ID included in the present section with the table IDs stored in the memory . . .

if it is determined in the step (2) that the two version numbers are not the same, receiving and processing the present section

as recited in independent claim 6.

Accordingly, the invention as recited in independent claims 1 and 6 and their dependent claims (due to their dependency), is patentable over the combination of references as applied by the Examiner, and reconsideration and withdrawal of the rejection based on these reasons is respectfully requested.

Claims 4-5 and 8-11 have been rejected under 35 U.S.C § 103(a) as being unpatentable over *Freimann et al.* (U.S. Patent No. 6,134,554) in view of

Anderson et al. (U.S. Patent No. 6,091,772). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

As discussed above, *Freimann et al.* does not teach or suggest, *inter alia*:

a comparing unit for determining matching of a table ID included in a present section with the table IDs stored in the memory . . .

a section processing unit for receiving and processing the present section if it is determined that the version number stored in the matched table ID is not the same as the version number of the present section

as recited in independent claim 1 from which claims 4 and 5 depend; and

determining matching of the table ID included in the present section with the table IDs stored in the memory . . .

if it is determined in the step (2) that the two version numbers are not the same, receiving and processing the present section

as recited in independent claim 6 from which claims 8-11 depend.

Furthermore, *Anderson et al.* does not overcome these deficiencies in *Freimann et al.* because *Anderson et al.* basically teaches a conventional method of comparing the section data with prestored section data, and not necessarily comparing the table IDs and the version numbers.

Therefore, even if the references are combinable, assuming *arguendo*, the combination of references as applied by the Examiner does not teach or suggest the invention as recited in independent claims 1 and 6 and their

dependent claims. Based on these reasons, reconsideration and withdrawal of the rejection is respectfully requested.

III. NEW CLAIMS

Claims 13 and 14 further define the invention as recited in independent claims 1 and 6, and are thus allowable for at least the same reasons that claims 1 and 6 are allowable as discussed above.

Accordingly, early indication of allowance of new claims 13 and 14 is respectfully requested.

CONCLUSION

For the foregoing reasons and in view of the above clarifying amendments, Applicant respectfully requests the Examiner to reconsider and withdraw all of the objections and rejections of record, and earnestly solicits an early issuance of a Notice of Allowance.

Should there be any outstanding matters which need to be resolved in the present application, the Examiner is respectfully requested to contact Esther H. Chong (Registration No. 40,953) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

Applicant(s) respectfully petitions under the provisions of 37 C.F.R. § 1.136(a) and 1.17 for a one month extension of time in which to respond to the Examiner's Office Action. The Extension of Time Fee in the amount of \$110.00 attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and further replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASH & BIRCH, LLP

By 

Joseph A. Kolasch
Registration No. 22,463
P.O. Box 747
Falls Church, VA 22032-0747
(703) 205-8000


JAK/EHC:lmh

Enclosures: Drawing Change Authorization Request
Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Abstract

The Abstract has been amended as follows:

--ABSTRACT OF THE DISCLOSURE

A device [Device] and method for filtering added information, in which PSI [PSE] (Program Specification Information) in a transport stream is processed in an MPEG-2 system layer, are provided. The [, the] device includes [including] a memory for storing table IDs and version numbers of sections for each of the table IDs, a combination of at least one of the sections forming a table which added information defines;[,] a comparing unit for determining matching of a table ID included in the present section and the table IDs stored in the memory upon reception of the section, and comparing the version number of the matched table ID to the version number of a received section number;[,] and a section processing unit for receiving[,] and processing the present section if it is determined that the version number stored in the table ID [the same with the table ID of the section received from the comparing unit] is not the same as [with] the version number of the received section, where by reducing a size and complexity of hardware, i.e., memories, providing an effective system by abandoning unnecessary sections instead of selecting

required sections, and preventing missing sections which should be processed or wasting of the filter due to a time period required for setting the filter.--

In the Specification

The specification has been amended as follows:

Page 1, lines 3-5 have been rewritten as follows:

--The present invention relates to a MPEG-2 transport decoder, and more particularly, to a device and method for filtering added information, in which PSI (Program Specification Information) in a transport stream is processed in an MPEG-2 system layer.--

Page 1, line 7 through page 2, line 19, have been rewritten as follows:

The MPEG-2, widely known as a moving picture compression method, has standards on a system layer for compression of an audio data, in addition to the moving picture data, and changing the moving picture data and the audio data suitable for transmission. The system layer has two systems, one is a TS (Transport Stream), and the other is a PS (Program Stream). While the PS system forms a pack by grouping a plurality of PES (Packetized Elementary Stream), reversely the TS system divides the PES for loading on a plurality of transport packets before transmission. That is, since the TS system transmits a plurality of video and audio individual bitstreams, the TS system requires information on selection of a program from a plurality of programs, and on

selection of a packet, and on how to decode the packet, that is called as PSI (Program Specification Information). The PSI is transmitted by a packet having identification codes or a packet indicated by a primary PSI. In the MPEG-2 system layer, the PSI is one of elements in the TS. In decoding and reproduction of the TS, one of the plurality of programs should be selected, and PIDs (Packet IDentification numbers) of the transport packets of the individual bitstreams required for the decoding and reproduction of the program should be known. Then, parameter information or linkage information of the individual bitstreams should be known. In order to conduct the foregoing multistage operation, a plurality of added information tables are required, which are transmitted by a data structure called as sections. Of the plurality of tables, PAT (Program Association Table) is special information transmitted by a packet with PID=0. Every program number in the PAT has a description on elements of a relevant program, and particularly, has a PID of the transport packet which transmits a PMT (Program Map Table). The PMT describes a program PID, and a PID list and annex information of a transport packet which transmits individual video and audio bitstreams. In this instance, different from the PES which deals with ES (Elementary Stream), coded video or audio data, the PSI is provided with a redundancy for making fast access available since the PSI includes information on the program. That is, the PSI has identical information repeatedly for quick starting of decoding at any time. For example, standards of the ATSC (Advanced Television Systems Committee)

requires transmission of information on PAT within at least 0.1 seconds, and on PMT within 0.4 seconds. That is, if the PAT is not available, there can be a problem in decoding since the information can not be identified as being a video or an audio. However, because there is no change in the information in most of the cases, information identical to the one transmitted before is transmitted. Accordingly, a general transport decoder has an algorithm for effective processing of such repeated data, one of which known widely is the section filtering defined in a DVB (Digital Video Broadcasting) standard. That is, the MPEG-2 has standards for four PSI tables each having a basic unit called a section, a combination of which forms one table. Information may be transmitted, with the information put in one section or a plurality of sections.--

On page 5, lines 8-20 have been rewritten as follows:

FIG. 1 illustrates one example of an 8 byte section filter, wherein, in a case mask bit is '1', a section data of a corresponding byte (or bit) is compared to a match data, for processing only sections which match the match data [is the same]. 'A' type section filter in FIG. 1 illustrates a case when the mask is set up in bit units, and 'B' type section filter in FIG. 1 illustrates a case when the mask is set up in byte units. For example, it can be known that a comparison of data in the section 'A' in (a) in FIG. 1 to the match data in the 'A' type section filter with a mask bit of '1' in (c) indicates [is turned out] that the two data are the same. In this case it is determined that the two data are

matched, and the data in the section 'A' is received and stored in a designated position. In this instance, since the data in the section 'A' and the match data in the 'B' type sector filter with a mask byte of '1' in (d) are not the same, the B type section filter does not receive the data in the section A. That is, it can be known that the section A in (a) and the A type section filter in (c) are matched, and the section B in (b) and the B type section filter in (d) are matched. Of PSI sections processed and transmitted thus, a desired PSI can be selected and processed. In fact, a DVB standard requires at least 32 section filters each with at least 8 bytes.

On page 7, line 23 through page 8, line 2 have been rewritten as follows:

--The method further includes [including] the step of skipping the section received at the present time if it is determined in the step (1) that there are no table IDs matched, or if it is determined in the step (2) that the two version numbers are the same.--

On page 8, lines 5-9 have been rewritten as follows:

--The method further includes [including] the steps of (6-1) determining completion of the table of the version processed at the present time, if it is determined in the step (1) that the table ID of the section received at the present time and the any one of table IDs stored in the memory are matched,

and (6-1) mask enabling the version number of the section if it is determined in the (6-1) step that the table is completed.--

On page 9, line 7 through page 11, line 12, have been rewritten as follows:

--Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings. Device and method for filtering added information of the present invention suggests application of only table IDs and version numbers to a filter for reducing a size and complexity of hardware, particularly memories. The table IDs are assigned to every table, and are included in every section. The device and method for filtering added information of the present invention also suggests receiving [to receives] a data which has the same table ID, but a different version number. FIG. 2 illustrates a system of hardware basis embodiment of a method for filtering added information in accordance with a preferred embodiment of the present invention, and FIG. 3 illustrates a flow chart showing a method for filtering added information in accordance with a first preferred embodiment of the present invention, schematically.

Referring to FIG 2, the system includes a table ID memory 22 for storing table IDs of sections, and a memory 21 for masking enable bits E for each table ID and versions to be masked. If a section 20 is received, a start of the section is searched for (S 301). If a payload unit_start_indicator is '1' in a TS packet

having a PSI payload, the start of the section can be known from a pointer field. And, another section is started if the next data is not 0xFF after one section is ended. In this instance, a first byte of the section 20 is the table ID. Therefore, the table ID is compared to the table IDs stored in the table ID memory 22 [.] (S302). If there is a table ID match[ed], a version number assigned to the matched table ID is read from the version memory 21 for the table ID_i[,] if not, the present section is skipped. In the meantime, if there is a matched table ID, it is determined whether or not a masking enable signal 'E' is [determined of being] '1'. If the masking enable signal 'E' is '1', a version number in the section is compared to a version number in the version memory 21[.] (S 303). If the version of the present section is the same with the version in the version memory 21, and in a state of mask enable, the present version is masked. That is, the same data has been [is] received and stored, already. Therefore, in this instance, the present data is skipped (S 304). The masking enable signal 'E' is a flag for determining storage of the received section. If the present section in the step S 303 is different from the version in the version memory 21 and there is no mask enable signal, the present section is either stored or processed(S 305).

FIG. 4 illustrates a flow chart showing a method for filtering added information in accordance with a second preferred embodiment of the present invention, wherein a start of a received section is searched for in the same method with the one shown in FIG. 3 (S 401). Once the start of the section is

found in the step 401, matching of the table ID in the located section and the table ID in the memory 22 is determined (S 402). If it is found in the step S 402 that the two table IDs are [in] matching, the version number stored in the version memory 21 for [of] the table ID and the version number of the located section are compared to each other (S 403). If it is found in the step S 403 that the version of the present section is the same with the version in the version memory 21, and the mask enable bit 'E' is '1', the present section is skipped (S 404) as the present version is masked (S 404). If it is found in the step S 403 that the version of the present section is different from the version in the version memory 21, and it is not in a mask enable state, the present section is stored or processed (S405). In the meantime, if it is determined in the step S402 that the table IDs are [in] matching, completion of one table is determined(S406). The table is deemed completed if all sections of the table for the version processed presently are [is] processed or no more sections are required. That is, completion of the table is verified on reception of section_number and last_section_number from the received section. If it is determined in the step S406 that the table is completed, a table completion bit 'C' of the table is set to '1', and if a version number automatic setting bit 'A' is '1', a received version number is stored in the version memory 21. The table completion bit 'C' is a flag set automatically for not processing the same sections of the version received after all the sections of one version is processed. And, the version number automatic setting bit 'A' is a flag for

automatic updating of the version stored in the version memory to a new version when sections of a new version is received. That is, if it is intended to store a received version number in the memory 21, the version number is stored after the mask enable bit 'E' is set to '1' if the table completion bit 'C' is '1'.--

On page 12, lines 11-21 have been rewritten as follows:

--In a case of the related art section filtering, the host sets the filter such that the sections with version numbers 0x00 are processed at first, and then the section with version number 0x01 is processed. And, upon reception of the section with the version number 0x01, the section is stored through the filter. The host sets the filter such that the stored section is read and decoded, and, then, the sections with version numbers 0x02 are processed. However, in the aforementioned case, the long time period required for setting the filter for processing the sections with version numbers 0x02 may lead to miss a first section of the version number 0x02. However, since the present invention suggests to mask the section with version number 0x01 at the hardware as soon as the section with version number 0x01 is received, the next sections with version numbers 0x02 can be processed without missing any of the sections with version numbers 0x02.--

In the Claims

The claims have been amended as follows:

1. (Amended) A device for filtering added information comprising:

a memory for storing table IDs and version numbers of sections for each of the table IDs, a combination of at least one of the sections forming a table which added information defines;

a comparing unit for determining matching of a table ID included in a present [the] section with [and] the table IDs stored in the memory upon reception of the present section, and comparing the version number of the matched table ID to the version number of a received section number; and[,]

a section processing unit for receiving[,]' and processing the present section if it is determined that the version number stored in the matched table ID is [the same with the table ID of the section received from the comparing unit is] not the same as [with] the version number of the present [received] section.

2. (Amended) A device as claimed in claim 1, wherein the section processing unit skips the section received at the present time if it is determined at the comparing unit that no table IDs match [are in match], or if the version number stored in the matched table ID is the same as [with] the version number of the received section.

4. (Amended) A device as claimed in claim 1, wherein, if it is determined that the table ID of the section received from the comparing unit presently matches [is in match with] the table ID stored in the memory, the section processing unit determines completion of the table of the version processed presently, and mask enables the version number of the section if it is determined that the table is completed.

6. (Amended) A method for filtering added information for receiving only required sections using a memory for storing table IDs and a memory for storing version numbers of the sections separate for each of the table IDs, the method comprising the steps of:

(1) upon reception of a present [the] section, determining matching of the table ID included in the present section with [and] the table IDs stored in the memory;

(2) if it is determined in the step (1) that [there are] the table IDs match[ed], determining whether the version number included in the received section is [of being] the same as [with] the version number stored in a version memory of the table ID; and[,]

(3) if it is determined in the step (2) that the two version numbers are not the same, receiving and processing the present section.

7. (Amended) A method as claimed in claim 6, further comprising the step of (4) skipping the section received at the present time if it is determined in the step (1) that there are no table IDs matched, or if it is determined in the step (2) that the two version numbers are the same.

9. (Amended) A method as claimed in claim 6, further comprising the steps of:;

(5) [(6-1)] determining completion of the table of the version processed at the present time, if it is determined in the step (1) that the table ID of the section received at the present time and [the] any one of the table IDs stored in the memory [are] match[ed] each other;[,] and

(6) [(6-10)] mask enabling the version number of the present section if it is determined in the (5) [(6-1)] step that the table is completed.

10. (Amended) A method as claimed in claim 6, where the step (1) further includes the step of determining starting of the received section with reference to a pointer field if a payload_syntax_indicator is '1' in a transport packet before the step of determining matching of the table ID included in the section and the table IDs stored in the memory.

11. (Amended) A method as claimed in claim 6, wherein the step (1) further includes the step of determining starting of another section if the next

data is not 0xFF after the present section comes to an end before the step of determining matching of the table ID included in the section and the table IDs stored in the memory.

12. (Amended) A method as claimed in claim 6, wherein the step (3) further includes the step of automatically updating a [the] version value stored in the version memory with a new version number upon reception of a section having the new version.

New claims 13 and 14 have been added.